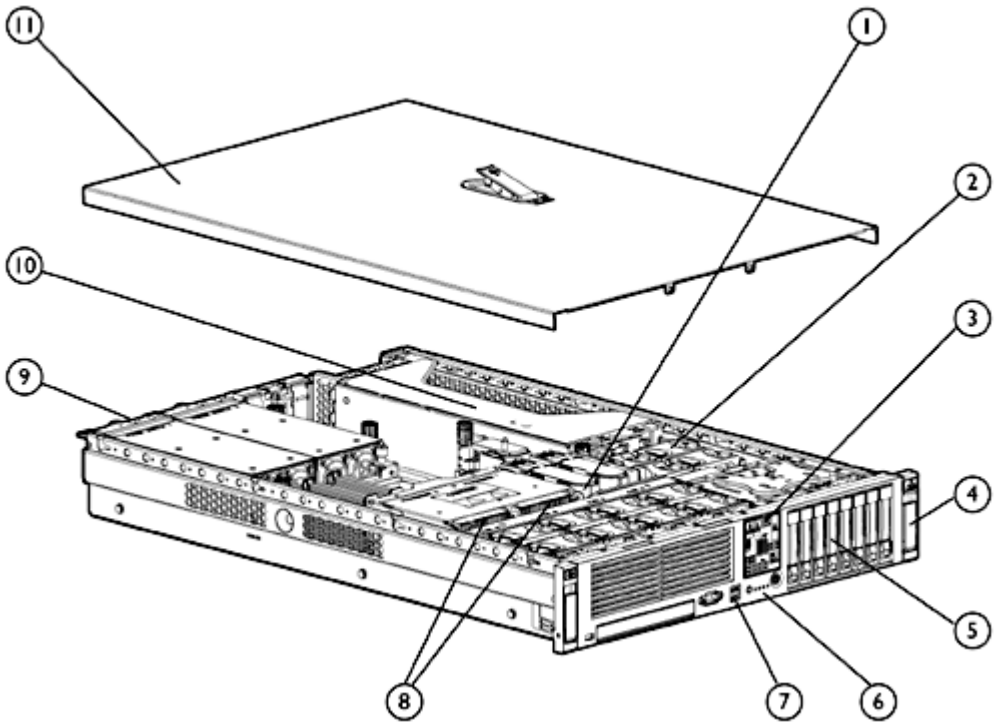
Overview



1. Eight sockets for PC2-5300 Fully Buffered DIMMs (DDR2-667)
2. Hot-plug fans, full redundancy
3. Systems Insight Display
4. Quick release lever for rapid server access
5. Support for eight Small Form Factor hot plug hard drives bays
6. Front LEDs (show server status) and Unit Identification button/LED (for easy in rack server identification)
7. Two front USB ports (2 rear USB ports, 1 internal USB port)
8. Intel Xeon Processor (Performance models include two processors)
9. Hot plug power supply, redundancy option (High performance models include redundant power supply)
10. Three PCI-E non-hot plug expansion slots (or optional mixed PCI-X/E expansion cage)
11. Quick removal access panel

At A Glance

The HP ProLiant DL380, the world's largest selling server, delivers on its history of design excellence with enterprise-class uptime and manageability, proven 2-way Intel Xeon performance, and 2U density for a variety of rack deployments and applications.

- Processors:
  - Dual-core Intel® Xeon™ 5000 and 5100 series processors with 4MB Level 2 cache for blazing performance; systems support up to 2 processors (2 processors standard on all Performance models)
  - Preconfigured Performance models save valuable deployment time at a discounted bundle price
  - Intel 5000P chipset
- Memory:
  - Up to 32 GB PC2-5300 Fully Buffered DIMMs (DDR2-667) with 4:1 and 2:1 interleaving available, online spare and mirrored memory capabilities
    NOTE: Memory DIMMs in systems with the Front Side Bus (FSB) running at 1333 MHz will run at 667 MHz and in

Overview

systems with a FSB running at 1066 MHz or 667 MHz the memory DIMMs will run at 533 MHz.

- Storage Controller:
  - Performance Models: Smart Array P400 Controller with 512MB battery-backed write cache (RAID 0/1/5/6)
  - Base Models: Smart Array P400 Controller with 256MB cache (RAID 0/1/5)
  - Entry Models: Smart Array E200 Controller with 64MB cache (RAID 0/1)
- Internal Drive Support:
  - (8) small form factor (SFF) hot-plug drive bays to support Serial-attached SCSI (SAS) and Serial ATA (SATA) drives
- Network Controller:
  - Embedded Dual NC373i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional ProLiant Essentials Licensing Kit
- Expansion Slots:
  - Four available PCI-Express slots, optional mixed PCI-X / PCI-Express configurations available
- USB Ports:
  - USB 2.0 support
  - 5 total ports: (2) ports up front; (2) ports in back; (1) port internal
- Redundancy:
  - Fully redundant hot plug fans
  - Hot plug power supply with optional redundancy (Included in Performance models)
- Management:
  - New Integrated Lights-Out 2 featuring Integrated Remote Console with KVM over IP performance over shared network access
  - HP Power Meter and Power Regulator for ProLiant, delivering integrated power monitoring and server level, policy based power management with industry leading energy efficiency and savings on system power and cooling costs.
  - Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU), HP System Insight Manager, Status LEDs including system health and UID and SmartStart
  - System Insight Display on the front bezel for quick and easy server diagnostics
- Form Factor:
  - Rack (2U), (3.5-inch)
- Deployment/Serviceability:
  - Quick Deploy Rail System includes sliding universal rails, an ambidextrous cable management arm and quick release levers for fast and easy serviceability
  - Tool-less access to all system components for easy in rack serviceability
- Warranty:
  - Protected by HP Services and a worldwide network of resellers and service providers. Three-year Next Business Day, on-site limited global warranty. Certain restrictions and exclusions apply. Pre-Failure Notification on processors, memory, and SCSI hard drives. SATA hard drives have a one-year warranty.

Standard Features

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Processor One of the following depending on Model	Dual-Core Intel Xeon Processor 5160 (3.0 GHz, 1333 Front Side Bus (FSB)) Dual-Core Intel Xeon Processor 5150 (2.67 GHz, 1333 FSB) Dual-Core Intel Xeon Processor 5140 (2.33 GHz, 1333 FSB) Dual-Core Intel Xeon Processor 5130 (2.0 GHz, 1333 FSB) Dual-Core Intel Xeon Processor 5120 (1.86 GHz, 1066 FSB) Dual-Core Intel Xeon Processor 5110 (1.6 GHz, 1066 FSB) Dual-Core Intel Xeon Processor 5080 (3.73GHz, 1066 FSB) Dual-Core Intel Xeon Processor 5060 (3.2GHz, 1066 FSB) Dual-Core Intel Xeon Processor 5050 (3.0 GHz, 667 FSB) NOTE: Up to 2 processors supported. Performance configurations include two processors.	
Cache Memory One of the following depending on Model	4MB (2 x 2MB) Level 2 cache (5000 series) 4MB (1 x 4MB) Level 2 cache (5100 series)	
Chipset	Intel 5000P Chipset NOTE: For more information regarding Intel chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/.	
Upgradeability	Upgradeable to 2 processors	
Memory Protection	Mirrored, Online spare and Advanced ECC	
Memory	Type	PC2-5300 Fully Buffered DIMMs (DDR2-667) with 4:1 and 2:1 interleaving available (interleaving requires identical DIMMs)
	Standard (Entry Models)	1 GB (2 x 512 MB)
	Standard (Base Models)	2 GB (2 x 1 GB)
	Standard (Performance Models)	4 GB (4 x 1 GB)
	Maximum	32 GB (8 x 4 GB)
	NOTE: Memory DIMMs in systems with the Front Side Bus (FSB) running at 1333 MHz will run at 667 MHz and in systems with a FSB running at 1066 MHz or 667 MHz the memory DIMMs will run at 533 MHz.	

Standard Features

Network Controller

Embedded Dual NC373i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional ProLiant Essentials Licensing Kit

Expansion Slots

Embedded Slots

Slot Number	Bus Speed*	Bus Number**	Device Number***	Hot Plug	PCI Voltage
1	x4 PCIe	6	0	no	N/A
2	x4 PCIe	11	0	no	N/A

NOTE: The Smart Array P400 Controller with 256MB Cache (SAS Controller) is installed in Slot 1.

PCIe Riser

Slot Number	Bus Speed*	Bus Number**	Device Number***	Hot Plug	PCI Voltage
3	x4 PCIe	14	0	no	N/A
4	x8 PCIe	23	0	no	N/A
5	x8 PCIe	19	0	no	N/A

PCIe/PCI-X Riser (Optional)

Slot Number	Bus Speed*	Bus Number**	Device Number***	Hot Plug	PCI Voltage
3	x8 PCIe	23	0	no	N/A
4	64-bit/133MHz PCI-X	18	1	no	3.3 Volt
5	64-bit/133MHz PCI-X	18	2	no	3.3 Volt

NOTE: PCIe slots are standard.
*NOTE: x4 slots support x8 cards, but will run at x4 speeds. x8 slots supports x16 cards, but will run at x8 speeds.
**NOTE: Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
***NOTE: Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

Storage Controller
One of the following depending on Model

Performance Models:	Smart Array P400 Controller with 512MB battery-backed write cache (RAID 0/1/5/6)
Base Models:	Smart Array P400 Controller with 256MB cache (RAID 0/1/5) Available upgrades: 512MB memory module for RAID 0/1/5/6, battery for battery-backed write cache (BBWC).
Entry Models:	Smart Array E200 Controller with 64MB cache (RAID 0/1) Available upgrades: 128MB memory module for RAID 0/1/5, battery for battery-backed write cache (BBWC).

Standard Features

Storage	Diskette Drive	None Standard	
	Optical Drive	None Standard	
	One of the following depending on Model	IDE DVD-ROM/CDRW Combo included on Performance models	
	Hard Drives	None Standard	
Maximum Internal Storage	Hot Plug SAS	576GB	8 x 72GB with standard internal hot plug SFF SAS drive cage

Remote Management

Integrated Lights Out 2 (iLO 2) Standard Management:

- Virtual Text Remote Console
- Virtual Power Button Control
- Integrated Remote Console
- Dedicated & full function shared network connectivity
- Embedded system health
- Browser, command line and scripted access
- Automatic IP Configuration via DHCP/DNS/WINS
- Industry Standard 128-bit Secure Sockets Layer (SSL) and Secure Shell security (SSH)
- OS independent hardware health status
- IML and iLO Event Logging
- Support for 12 user accounts with customizable access privilege

Intelligent Manageability

HP Systems Insight Manager
SmartStart
Management Agent
Redundant ROM
Remote Flash ROM
ROM-Based Setup Utility (RBSU)
Integrated Management Log
Automatic Server Recovery (ASR)
Dynamic Sector Repairing (with Smart Array controller)
Drive Parameter Tracking (with Smart Array controller)
Hot Spare Boot
NOTE: Upon the event of a failed processor in a multi-processing environment, the system will automatically reboot and attempt to use the remaining good processor.
Pre-Failure Warranty (covers processors, SCSI hard drives and memory)

Standard Features

Interfaces	Serial	1
	Pointing Device (Mouse)	1
	Graphics	1
	Keyboard	1
	VGA	2 (1 front, 1 back)
	Network RJ-45	2
	iLO 2 remote management port	1
	USB 2.0 Ports	5 (2 front, 2 back, 1 inside) NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html.
Graphics	Integrated ATI ES1000 1280 x 1024 x 16M color (32MB video standard)	
Form Factor	Rack (2U), (3.5-inch)	
ProLiant Essentials Foundation Pack Software	HP Systems Insight Manager	HP Systems Insight Manager (HP SIM) helps maximize system uptime and performance and reduce system maintenance costs by providing proactive notification of problems before those problems result in unplanned downtime or reduced productivity. For more information on HP SIM visit http://www.hp.com/go/hpsim.
	SmartStart	SmartStart simplifies server setup by providing a quick, easy way to deploy reliable and consistent server configurations. For more information, please visit the SmartStart Web site at http://www.hp.com/servers/manage. SmartStart version supported (minimum): SmartStart 7.51
	Insight Management Agents	The Insight Management Agents provide direct, browser-based access to in-depth instrumentation built into HP servers, workstations, desktops, or portables, and send alerts to Systems Insight Manager or other enterprise management applications in case of subsystem or environmental failures. For additional information about the Management Agents and other management products from HP, visit http://www.hp.com/servers/manage.
	Subscriber's Choice	Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides automatic delivery of software and driver change notifications for ProLiant products. Sign up at http://www.hp.com/go/subscriberschoice and customize your profile to receive alerts on updates as they become available.

ROMPaq, support software, and configuration utilities	The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options Available in SmartStart or downloadable from the Software and Drivers download pages at http://www.hp.com/go/support.
Insight Diagnostics	The most advanced configuration analysis, reporting and troubleshooting utilities used by HP and at your fingertips, available in SmartStart.
Optional ProLiant Essentials Value Packs	Optional software offerings that extend the functionality of an Adaptive Infrastructure to address specific business problems and needs: • Rapid Deployment Pack (RDP) is an automated deployment and provisioning solution for all ProLiant servers. RDP includes the ProLiant Integration Module featuring ProLiant server pre-configured events for OS installation, and optimized software drivers, firmware and management agents. Every RDP disc includes 7-day, 10-node trial licenses for evaluation purposes. RDP requires a license for each server deployed and is available for purchase with HP servers. For more information, visit: http://www.hp.com/servers/rdp. • Workload Management Pack - provides easier management of complex environments, improving overall server utilization and enabling Windows 2000 customers for the first time to confidently deploy multiple applications on a single multiprocessor ProLiant Server. • Integrated Lights-Out Advanced Pack - upgrades the iLO 2 processor with comprehensive remote control including Virtual KVM graphical console, virtual media, power management and enterprise security. • Integrated Lights-Out Select Pack - upgrades the iLO 2 processor with virtual media, power management and enterprise security for text console environments. • Performance Management Pack - a performance management solution that identifies and explains hardware performance bottlenecks on ProLiant servers and attached options enabling users to better utilize their valuable resources. • Intelligent Networking Pack - detects and analyzes network bottlenecks or broken network linkages and steers traffic to the optimum route based on network conditions, plus it provides an extra layer of protection. The virus throttle feature of the solution slows the propagation of fast spreading virus. • Vulnerability and Patch Management Pack - identifies and remediates software security vulnerabilities due to missing patches as well operating system configurations that can be exploited by viruses, worms, and other blended threats. • Virtual Machine Management Pack - provides central management and control of virtual machines from Microsoft and VMware. Integrated approach provides the ability to manage both physical and virtual resources from a single management console. • Server Migration Pack - The Server Migration Pack automates the manual processes required for migrating servers between physical or virtual platforms (P2V, V2P, and V2V). •

- Server Migration Pack - P2P Edition: Upgrading or replacing your existing server? Effortlessly transition to new servers with automated, accurate and affordable migration of OS, application and data.
- Accelerated iSCSI Pack - enables the embedded Multifunction network controller to serve as both a NIC and an iSCSI HBA providing access to SAN storage over the same connection used for networking. Processing of the protocol stack is offloaded to the NIC reducing CPU utilization and greatly improving the speed with which the requests are processed and sent to the network.

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to http://www.hp.com/servers/proliantessentials or the various ProLiant Essentials Value Pack product QuickSpecs for more information.
NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: http://www.hp.com/servers/proliantessentials.

Industry Standard Compliance	ACPI 2.0 Compliant PCI 2.2 Compliant WOL Support Microsoft® Logo certifications USB 2.0 Support
Security	Power-on password Keyboard password Diskette drive control Diskette boot control QuickLock, Network Server Mode Parallel and serial interface control Administrator's password Disk configuration lock
Server Power Cords	One Highline IEC Power cord ships standard
UPS and PDU Power Cord Matrix	Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units: ftp://ftp.compaq.com/pub/products/servers/ProLiantstorage/power-protection/powercordmatrix.pdf.
Power Supply	800 Watt, CE Mark Compliant Optional Hot Plug AC Redundant Power Supply
System Fans	12 hot plug fans ship standard, fully redundant

Standard Features

Required Cabling	For required cabling information, refer to the Web site at: http://h18000.www1.hp.com/products/servers/proliantDL380/.
OS Support	Microsoft Windows Server 2000 Microsoft Windows Server 2003 Novell NetWare LINUX (Red Hat, SuSE) SCO UnixWare, OpenServer VMware Virtualization Software Solaris 10 32/64-bit NOTE: For more complete and up-to-date information on how to buy server operating systems from HP please visit the OS product site at: http://h18004.www1.hp.com/products/servers/software/OEM.html. NOTE: For a more complete and up-to-date listing of supported OSs and versions, please visit our OS Support Matrix at: http://www.hp.com/go/supportos. NOTE: For an up-to-date listing of the latest drivers available for the HP ProLiant DL380 G5, please see: http://h18023.www1.hp.com/support/files/server/us/index.html. NOTE: For a more complete and up-to-date information on Linux support, please visit HP Linux Web site at: http://h18000.www1.hp.com/products/servers/linux/hpLinuxcert.html. NOTE: For more information on HP's Certified and Supported ProLiant Servers, please visit the VMware Server Support Matrix at: http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html.
Rack Airflow Requirements	Rack 10000 series Cabinets The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors. CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment: • Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation). • Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm). CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage. NOTE: For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the server, or to the server documentation located in the Support section at the following URL: http://h18000.www1.hp.com/products/servers/proliantdl380/index.html.

Standard Features

Rack Kit

The HP ProLiant DL380 quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000*, 9000, 10000 and HP series), with an adjustment range of 24" - 36". The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management.
NOTE: Cable management arm must be removed to access hot-plug power supplies when the cable management arm is mounted on the right.
*NOTE: High Airflow Inserts (High Air Flow Rack Door Insert for the 7142 Rack (single) - PN: 327281-B21; or High Air Flow Rack Door Insert for the 7142 Rack (6-pack) - PN: 327281-B22) are required to support the HP ProLiant DL380 G5 in 7000 series racks. The DL380 G5 Cable Management Arm is not supported on 7000 series racks.

Telco Rack Support

DL380 G5 Telco Rack Kit:
Support for all 2-post Telco racks requires the use of the standard rack kit and an additional option kit from Rack Solutions (http://www.racksolutions.com/hp/)

Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to http://www.hp.com/go/factory-express.

Custom Builder

Please see the Enterprise Configurator for configuration assistance at:
http://www.hp.com/products/configurator.

RoHS Compliant

For Resellers in countries/regions with RoHS legislation (see NOTE) (e.g. EU, China, etc.)
The use of the noted material in a solution and subsequent resale of that solution will result in the solution no longer meeting the requirements of RoHS legislation.

NOTE: Directive 2002/95/EC restricts the use of lead, mercury, cadmium, hexavalent chromium, PBBs and PBDEs in electronic products. Countries/regions outside the EU, eg. China, are introducing similar legislation. References to 'RoHS legislation' means requirements of Directive 2002/95/EC or to similar substance restriction legislation enacted by any country/region outside the EU.

Standard Features

Service and Support

HP services provide continuous care and support expertise with committed response designed to meet your IT and business needs.

To fully capitalizing on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions provides a range of support services designed to meet the varying needs of business. Whether an SMB or large global corporation HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

Extended Care – Minimum recommended service support offer designed to ensure customers have access to expert assistance, whenever they need it.

- Add services description and part number e.g. ProLiant ML110 3 year 9x5 next business day coverage, excluding holidays - part number.

Committed Care – Cost-effective service options designed to extend HP Services committed response and guaranteed fix times, designed to speed problem resolution.

- Add services description and part number e.g. ProLiant ML110 1 3 year 3x5 same business day 4 hour response coverage, excluding holidays - part number.

Committed Response – Highest HP Support service level recommend to help increase IT performance and availability with comprehensive, consistent hardware and software services

- Add services description and part number e.g. ProLiant ML110 3 year 24x7 same business day 4 hour response coverage - part number.

Deployment Services - HP Installation and Start Up services designed to take time, risk, and worry out of the deployment of ProLiant servers — and free customers people to focus on what they do best, their business.

- Add services description and part number e.g. ProLiant ML110 Installation - part number.

For more information visit:
http://www.hp.com/services/proliantservices
http://www.hp.com/go/proliant/carepack

HPC Interconnects

NOTE: High Performance Computing (HPC) interconnect technologies are available for the DL380 under the Cluster Platform product portfolio. These high-speed interconnects are fully supported by HP when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPC Clusters with InfiniBand, Gigabit Ethernet or Myrinet Interconnects: http://www.hp.com/techservers/clusters/ucp/index.html

HPC Interconnect	InfiniBand	PCI-X and PCI-Express adapters
	Gigabit Ethernet	Use embedded ports
	Myrinet XP	PCI-X Rev D and Rev E adapters

Models

HP DL380 G5 Performance Models HP DL380G5 5160 4G HPM 418315-xx1 HP DL380G5 5150 4G HPM 418314-xx1	Processor(s) Two of the following depending on Model	(2) Dual-Core Intel Xeon 5160 Processors (3.00 GHz, 1333 FSB) (2) Dual-Core Intel Xeon 5150 Processors (2.67 GHz, 1333 FSB)
	Cache Memory	4MB (1 x 4MB) Level 2 cache - 5100 Series
	Memory	4 GB (4 x 1 GB of 4:1 interleaved PC2-5300 Fully Buffered DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities
	Network Controller	Embedded Dual NC373i Multifunction Gigabit NICs
	Storage Controller	Smart Array P400 Controller with 512MB battery-backed write cache (RAID 0/1/5/6)
	Hard Drive	None ship standard
	Internal Storage	576GB max - 8 x 72GB SAS drives (with optional hard drives)
	Optical Drive	IDE DVD-ROM/CDRW combo
	Form Factor	Rack (2U), (3.5-inch)
	Availability	Hot Plug Fully Redundant Fans and Power Supplies

HP DL380 G5 Base Models HP DL380G5 5160 2G 417458-xx1 HP DL380G5 5150 2G 417457-xx1 HP DL380G5 5140 2G 417456-xx1 HP DL380G5 5130 2G 417455-xx1 HP DL380G5 5060 2G 397307-xx1	Processor(s) One of the following depending on Model	(1) Dual-Core Intel Xeon 5160 Processors (3.00 GHz, 1333 FSB) (1) Dual-Core Intel Xeon 5150 Processors (2.67 GHz, 1333 FSB) (1) Dual-Core Intel Xeon 5140 Processor (2.33 GHz, 1333 FSB) (1) Dual-Core Intel Xeon 5130 Processor (2.0 GHz, 1333 FSB) (1) Dual-Core Intel Xeon 5060 Processor (3.2 GHz, 1066 FSB)
	Cache Memory One of the following depending on Model	4MB (1 x 4MB) Level 2 cache - 5100 Series 4MB (2 x 2MB) Level 2 cache - 5000 Series
	Memory	2 GB (2 x 1 GB) PC2-5300 Fully Buffered DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities
	Network Controller	Embedded Dual NC373i Multifunction Gigabit NICs
	Storage Controller	Smart Array P400 Controller with 256MB cache (RAID 0/1/5)
	Hard Drive	None ship standard
	Internal Storage	576GB max - 8 x 72GB SAS drives (with optional hard drives)
	Optical Drive	Optional CD-ROM, DVD, DVD/CD-RW combo, DVD+R/RW or floppy drive
	Form Factor	Rack (2U), (3.5-inch)
	Availability	Hot Plug Fully Redundant Fans Standard

Models

HP DL380 G5 Entry Models	Processor(s) One of the following depending on Model	(1) Dual-Core Intel Xeon 5120 Processor (1.87 GHz, 1066 FSB) (1) Dual-Core Intel Xeon 5110 Processor (1.60 GHz, 1066 FSB)
HP DL380G5 5120 1G 417454-xx1	Cache Memory	4MB (1 x 4MB) Level 2 cache - 5100 Series
HP DL380G5 5110 1G 417453-xx1	Memory	1 GB (2 x 512 MB) PC2-5300 Fully Buffered DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities
	Network Controller	Embedded Dual NC373i Multifunction Gigabit NICs
	Storage Controller	Smart Array E200 Controller with 64MB cache (RAID 0/1)
	Hard Drive	None ship standard
	Internal Storage	576GB max - 8 x 72GB SAS drives (with optional hard drives)
	Optical Drive	Optional CD-ROM, DVD, DVD/CD-RW combo, DVD+R/RW or floppy drive
	Form Factor	Rack (2U), (3.5-inch)
	Availability	Hot Plug Fully Redundant Fans Standard

Country Code Key	XX=00	U.S.
	XX=20	Brazil
	XX=29	Japan
	XX=37	APD
	XX=42	Euro
	XX=AA	PRC

Configuration Information - Factory Integrated Models (North America only)

NOTE: For Configure to Order requirements within EMEA region, please consult local Sales Contact.
NOTE: HP does not allow factory integration of options into standard models listed above.
Configure-to-order servers must start with a CTO Chassis.
NOTE: This product offering does not support HP Factory Express Server Configuration Level 1.
NOTE: FIO indicates that this option only available as a Factory Installable Option.

Step 1: Base Configuration (choose one of the following configurable models)

Models	HP ProLiant DL380G5 Rack Chassis	391835-B21
	Factory Integrated Model ships with:	
	(8) SFF Serial Attached SCSI (SAS) Drive Bays	
	Embedded Dual NC373i Multifunction Gigabit NICs	
	PCI-Express Riser Cage	
	800 Watt hot plug power supply, CE Mark Compliant	
	One IEC Power cord	
	12 hot plug fans (fully redundant)	
	Rack (2U), (3.5-inch)	

Step 1A: Choose SAS Controller (must choose only one of the following)

SAS Controllers	P400/256 for DL380 G5/ DL385 G2 FIO	405160-B21
	NOTE: PCI Express	
	P400/512 BBWC for DL380 G5/ DL385 G2 FIO	405162-B21
	NOTE: PCI Express	
	HP Smart Array E200/64 Controller	409180-B21
	NOTE: PCI Express	
	HP Smart Array E200/128 BBWC Controller	411508-B21
	NOTE: PCI Express	
	HP Smart Array P600 Controller	337972-B21
	NOTE: PCI-X. SA-P600 Controller supports both internal and external drives.	

Step 2: Choose Required Options (only one of the following from each list unless otherw noted)

Processors	HP X5160 DL380G5 FIO Kit	418324-L21
	HP X5150 DL380G5 FIO Kit	418323-L21
	HP X5140 DL380G5 FIO Kit	418322-L21
	HP X5130 DL380G5 FIO Kit	418321-L21
	HP X5120 DL380G5 FIO Kit	418320-L21
	HP X5110 DL380G5 FIO Kit	418319-L21
	HP X5080 DL380G5 FIO Kit	412967-L21
	HP X5060 DL380G5 FIO Kit	397328-L21
	HP X5050 DL380G5 FIO Kit	397326-L21
Base Memory	1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
	2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
	4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
	8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21

Step 3: Choose Additional Options for Factory Integration

Performance Packs	The HP ProLiant DL380 G5 performance packs are necessary to configure a HP ProLiant DL380 G5 Performance Model. HP ProLiant DL380 G5 Performance model includes the latest performance technologies and enterprise class availability features pre-installed for convenience and value. The performance pack includes a 2nd processor and a redundant power supply.	
	HP DL380G5 X5160 HPM FIO Perf Pack	419812-B21
	HP DL380G5 X5150 HPM FIO Perf Pack	419811-B21

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Options" section below.

Options

NOTE: Some options may not be integrated at the factory. Please contact your local sales representative for additional information.

HP ProLiant DL380 G5 Mixed Riser Cage Option Kit (PCI-E/PCI-X) 410570-B21

Unique Options

ProLiant Essentials Value Pack Software

ProLiant Essentials Integrated Lights-Out Advanced Pack

ProLiant Essentials Integrated Lights-Out Advanced Pack, 1 server License 263825-B21

Featuring: sophisticated virtual administration features for ultimate control of servers in the data centers and remote sites.

NOTE: For additional ProLiant Integrated Light-Out Advanced Pack License Kits please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/11052_div/11052_div.HTML

ProLiant Essentials Integrated Lights-Out Select Pack

ProLiant Essentials Integrated Lights-Out Select Pack, 1 server License 413119-B21

Featuring: sophisticated remote control and security features for HP BladeSystem servers and ProLiant ML/DL servers in text console environments.

NOTE: For additional ProLiant Integrated Light-Out Select Pack License Kits please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.HTML

ProLiant Essentials Intelligent Networking Pack

ProLiant Essentials Intelligent Networking Pack - Windows Edition, Single Server License 372906-B21

NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.

NOTE: For additional ProLiant Intelligent Networking Pack - Windows License Kits please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/12062_div/12062_div.HTML

ProLiant Essentials Intelligent Networking Pack - Linux Edition, Single Server License 397004-B21

NOTE: For additional ProLiant Intelligent Networking Pack - Linux License Kits please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/12327_div/12327_div.HTML

ProLiant Essentials Performance Management Pack

ProLiant Essentials Performance Management Pack, Single-Server License 306696-B21

NOTE: For use with a single server. Contains one license with a unique license activation key, HP Management CD and documentation.

NOTE: The most recent version of the software can always be downloaded at http://www.hp.com/products/pmp.

NOTE: For additional ProLiant Performance Management Pack License Kits please see the QuickSpecs at:
http://h18000.www1.hp.com/products/quickspecs/11925_div/11925_div.HTML

ProLiant Essentials Rapid Deployment Pack

Rapid Deployment Pack, Single-Server License 267196-B21

NOTE: This license allows 1 server to be deployed and managed via RDP.

Rapid Deployment Pack, Single-Server License (Japan) NOTE: This license allows 1 server to be deployed and managed via RDP. NOTE: For additional ProLiant Essentials Rapid Deployment Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11053_div/11053_div.HTML	267196-291
ProLiant Essentials Workload Management Pack	
ProLiant Essentials Workload Management Pack, Single Server License NOTE: For additional ProLiant Workload Management Pack License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11452_div/11452_div.HTML	303284-B21
ProLiant Essentials Virtualization Management Software	
ProLiant Essentials Virtual Machine Management Pack, Single-Server License NOTE: For use with a single server. Contains one license with a unique license activation key and documentation.	372214-B21
ProLiant Essentials Server Migration Pack, Single-Migration License NOTE: Contains one license, enabling 1 server migration, with a unique license activation key and documentation.	375345-B21
ProLiant Essentials Server Migration Pack - Physical to ProLiant Edition, Single-Migration License NOTE: This license allows 1 server to be migrated from a physical server to a virtual machine. Or this license can be used to migrate a virtual machine from one virtualization layer i.e. VMware GSX to a different virtualization layer such as VMware ESX or Microsoft Virtual Server 2005. NOTE: For additional ProLiant Essentials Virtualization Management Software License Kits please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12328_div/12328_div.HTML	412978-B21
ProLiant Essentials Vulnerability and Patch Management Pack	
ProLiant Essentials Vulnerability and Patch Management Pack, Single-Server License NOTE: For use with a single server. Contains one license with a unique license activation key and documentation. NOTE: For additional ProLiant Vulnerability and Patch Management Pack License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12111_div/12111_div.HTML	371645-B21
ProLiant Essentials Accelerated iSCSI Pack	
ProLiant Essentials Accelerated iSCSI Pack, Single Server License NOTE: For additional Accelerated iSCSI Pack License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12466_div/12466_div.HTML NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to http://www.hp.com/servers/proliantessentials or the various ProLiant Essentials Value Pack product QuickSpecs for more information. NOTE: For more information regarding ProLiant Essentials Software, please see the following URL: http://www.hp.com/servers/proliantessentials.	407484-B21

Options

ProLiant Software Maintenance Subscription	ProLiant Software Maintenance Subscription	355060-B21
	ProLiant Software Maintenance Single Release	356573-B21
	ProLiant Foundation Pack Single Release	356604-B21
	NOTE: Please see the SmartStart QuickSpecs for additional information regarding the subscription purchase: http://h18000.www1.hp.com/products/quickspecs/Division/11073.html (Worldwide)	
Processors	Dual-Core Intel Xeon 5160 Processor (3.0 GHz, 1333 FSB)	418324-B21
	Dual-Core Intel Xeon 5150 Processor (2.67 GHz, 1333 FSB)	418323-B21
	Dual-Core Intel Xeon 5140 Processor (2.33 GHz, 1333 FSB)	418322-B21
	Dual-Core Intel Xeon 5130 Processor (2.0 GHz, 1333 FSB)	418321-B21
	Dual-Core Intel Xeon 5120 Processor (1.86 GHz, 1066 FSB)	418320-B21
	Dual-Core Intel Xeon 5110 Processor (1.6 GHz, 1066 FSB)	418319-B21
	Dual-Core Intel Xeon 5080 Processor (3.73 GHz, 1066 FSB)	412967-B21
	Dual-Core Intel Xeon 5060 Processor (3.2 GHz, 1066 FSB)	397328-B21
	Dual-Core Intel Xeon 5050 Processor (3.0 GHz, 667 FSB)	397326-B21
Memory	1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
	2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
	4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
	8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21
Optical Drives	Slimline CD-RW/DVD-ROM Combo Option Kit NOTE: Included in performance models.	331903-B21
	Slimline DVD-ROM Drive (8x/24x) Option Kit	264007-B21
	Slimline CD-ROM Drive 24X	356963-B21
	HP DVD+R/RW 8X Slim	383975-B21
Diskette Drive	Slimline Ejectable Floppy drive	390164-B21

Options

Hard Drives

SFF SAS - Universal Hot Plug

HP 36GB 3G SAS 10K SFF HDD	375859-B21
HP 72GB 3G SAS 10K SFF HDD	375861-B21

NOTE: Please see the SAS Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:
http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.HTML (Worldwide)

SFF SATA Hot Plug

HP 60GB 1.5G SATA 5.4K SFF HDD	379306-B21

NOTE: SATA drives have a 1 year warranty. Please see the SATA Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature:
http://h18000.www1.hp.com/products/quickspecs/12091_div/12091_div.HTML (Worldwide)

Storage Controllers

NOTE: Please refer to the HP ProLiant DL380 G5 SCSI Cabling Matrix for information on what's required to cable optional array controllers:
ftp://ftp.compaq.com/pub/products/servers/proliantdl380/dl380g4-cabling-matrix.pdf

SAS Controllers

Smart Array P400 Controller

HP Smart Array P400/256MB Controller	405132-B21
HP Smart Array P400 Controller/512MB and BBWC	411064-B21
512MB Battery-backed cache upgrade NOTE: For Smart Array P400 Controller.	405148-B21
Battery-backed write cache upgrade NOTE: For Smart Array P400 Controller.	383280-B21
Smart Array P400 Battery Attach Kit NOTE: This option kit contains a 24" battery cable and adhesive material for installing a battery into the server if a Smart Array P400 is integrated outside of the factory. For all solutions, please refer to the server QuickSpecs and User's Manual for detailed installation instructions.	417836-B21

Smart Array E200 Controller

HP Smart Array E200/128 Controller	411508-B21
HP Smart Array E200/64 Controller	409180-B21
128-MB BBWC (Battery-Backed Write Cache) Enabler NOTE: Supports the Smart Array E200 Controller, Smart Array 641 Controller, and Smart Array 642 Controller.	351580-B21

Smart Array P600 Controller

HP Smart Array P600 Controller NOTE: Requires Mixed PCI-E/X riser cage.	337972-B21

Options

512 MB Battery-Backed Cache Upgrade NOTE: This 512-MB Battery-Backed Cache Module upgrade kit supports the Smart Array P600 Controller and the Smart Array 6400 series Controller. NOTE: Please see the following Controller QuickSpecs for Technical Specifications such as PCI Bus, PCI Peak Data Transfer Rate, SCSI Protocols supported, SCSI Peak Data Transfer Rate, Channels, SCSI Ports, Drives supported, Cache, RAID support, and additional information: http://h18000.www1.hp.com/products/quickspecs/12460_div/12460_div.HTML (Smart Array E200 Controller) http://h18000.www1.hp.com/products/quickspecs/12400_div/12400_div.HTML (Smart Array P400 Controller) http://h18000.www1.hp.com/products/quickspecs/12247_div/12247_div.HTML (Smart Array P600 Controller)	372538-B21
SAS HBA	
HP 8 Internal Port SAS HBA with RAID NOTE: Please see the following QuickSpecs for additional information: http://h18004.www1.hp.com/products/quickspecs/12332_div/12332_div.html (SAS HBA)	347786-B21
SCSI Controllers for External Drive/Storage Support NOTE: All Ultra 320 controllers are PCI-X and require the Mixed Riser Cage Option Kit (PCI-E/PCI-X).	
Smart Array 6402/128 Controller NOTE: Ultra320 SCSI.	273915-B21
Smart Array 6404/256 Controller NOTE: Ultra320 SCSI.	273914-B21
Smart Array 642 Controller NOTE: Ultra320 SCSI.	291967-B21
128-MB Battery-Backed Write Cache (BBWC) NOTE: Supports the Smart Array E200 Controller, Smart Array 641 Controller, and Smart Array 642 Controller.	351580-B21
Ultra320 Expansion Module for SA-6402	273911-B21
64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 NOTE: Please see the following Controller or SCSI Adapter QuickSpecs for Technical Specifications such as PCI Bus, PCI Peak Data Transfer Rate, SCSI Protocols supported, SCSI Peak Data Transfer Rate, Channels, SCSI Ports, Drives supported, Cache, RAID support, and additional information: http://h18000.www1.hp.com/products/quickspecs/11943_div/11943_div.HTML (Single Channel Ultra320 SCSI HBA) http://h18000.www1.hp.com/products/quickspecs/11587_div/11587_div.HTML (Smart Array 6400 Series) http://h18000.www1.hp.com/products/quickspecs/12069_div/12069_div.HTML (Smart Array 642)	374654-B21

Options

Communications	HP NC150T PCI 4-port Gigabit 1000T Combo Switch Adapter	367132-B21
	HP NC310F PCI-X 1000SX Gigabit Server Adapter	368169-B21
	HP NC320T PCI Express 1000T Gigabit Server Adapter	367047-B21
	HP NC340T PCI-X 4-port 1000T Gigabit Server Adapter	391661-B21
	HP NC370F PCI-X Multifunction 1000SX Gigabit Server Adapter	374193-B22
	HP NC370T PCI-X Multifunction 1000T Gigabit Server Adapter	374191-B22
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter	394795-B21
	HP NC1020 PCI 1000T Gigabit Server Adapter	353377-B21
	HP NC7170 PCI-X Dual Port 1000T Gigabit Server Adapter	313881-B21
	HP NC7771 PCI-X 1000T Gigabit Server Adapter	290563-B21
	NOTE: Any NIC (except the NC1020) on the option list can be used for redundancy with the embedded Dual NC373i Multifunction Gigabit NICs. When teaming with other NICs or with the embedded NIC, the lack of Jumbo Frames and LSO features on the NC1020 will cause high end NICs to have those features disabled.	

Redundant Options	Redundant Power Supply 350/370/380 G5 AU Kit	399771-011
	Redundant Power Supply 350/370/380 G5 EU Kit	399771-021
	Redundant Power Supply 350/370/380 G5 JP Kit	399771-291
	Redundant Power Supply 350/370/380 G5 Worldwide Kit	399771-B21
	Redundant Power Supply 350/370/380 G5 UK Kit	399771-031
	Redundant Power Supply 350/370/380 G5 US Kit	399771-001

Tape Drives	NOTE: For the complete listing of Tape Drive offerings, please see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html	
	NOTE: All SCSI tape and tape automation devices connecting to the Single Channel Ultra320 SCSI HBA G2 (374654-B21) require the optional PCI-X Hot Plug Riser Cage Option Kit (410570-B21).	
	For recommended tape drive offerings for this ProLiant server see the following:	
	USB Tape Drives	
	HP StorageWorks DAT 72 USB External Tape Drive (Carbonite)	DW027A
	External, Rack-Mount, and Array Module Ultrium Tape Drives	
	HP StorageWorks Ultrium 232 External Tape Drive (Carbonite)	DW065B
	HP StorageWorks Ultrium 460 External Tape Drive (Carbon)	Q1520B
	HP StorageWorks Ultrium 448 External Tape Drive (Carbonite)	DW017B
	HP StorageWorks 1U Rack-mount kit with one Ultrium 448 (Carbonite)	DW028B
	HP StorageWorks Ultrium 960 External Tape Drive (Carbonite)	Q1539B
	HP StorageWorks 3U Rack-mount kit with one Ultrium 960 (Carbonite)	Q1595B
	NOTE: Please see the HP StorageWorks Ultrium Tape Drive QuickSpecs for additional	

	options such as controllers, media, and other related items: http://h18006.www1.hp.com/products/quickspecs/11739_div/11739_div.html (Worldwide) For an up-to-date listing of the latest O/S and software support details for HP Ultrium tape drives, please visit: http://www.hp.com/go/connect.	
	External, Rack-Mount, and Array Module DAT Drives	
	HP StorageWorks DAT 72 SCSI External Tape Drive (Carbon)	Q1523B
	NOTE: Please see the DAT Tape Drive QuickSpecs for controllers, media, and other options: http://h18000.www1.hp.com/products/quickspecs/11883_div/11883_div.HTML (Worldwide) For an up-to-date listing of the latest O/S and software support details for HP DAT drives, please visit: http://www.hp.com/go/connect.	
	Rack-Mount Tape Drive Enclosures	
	HP StorageWorks 1U Rack-Mount Kit NOTE: The 1U Rack-mount Kit can support up to 2 half-height tape drives and is compatible with multiple Single-Ended and LVD SCSI tape drives including DAT 24, DAT 40, DAT 72, DLT VS80, DLT VS160, Ultrium 215, Ultrium 232, and Ultrium 448 tape drives.	A7445B
	HP StorageWorks 1U USB Rack-Mount Kit	A8007A
	HP StorageWorks 3U Rack-Mount Kit NOTE: The 3U Rack-Mount Kit can support up to 2 full-height or 4 half-height tape drives and compatible with multiple Single-Ended and LVD SCSI tape drives including DAT 24, DAT 40, DAT 72, DLT VS80, DLT VS160, SDLT 320, SDLT 600, Ultrium 215, Ultrium 230, Ultrium 232, Ultrium 460, Ultrium 448 and Ultrium 960 tape drives. NOTE: Please see the Rack-Mount Tape Drive Kits QuickSpecs for additional information regarding these kits: http://h18000.www1.hp.com/products/quickspecs/10854_div/10854_div.HTML (Worldwide)	274338-B22
Tape Autoloaders	HP StorageWorks 1/8 Tape Autoloader	
	HP StorageWorks 1/8 Ultrium 960 Tape Autoloader	AF204A
	HP StorageWorks 1/8 Ultrium 448 Tape Autoloader	AF203A
	HP StorageWorks 1/8 Ultrium 232 Tape Autoloader	AF202A
	NOTE: Please reference the 1/8 Tape Autoloader QuickSpecs at http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at http://www.hp.com/go/ebs	

Options

Tape Libraries	HP StorageWorks MSL2024 Tape Library	
	HP StorageWorks MSL2024 1 Ultrium 960 Drive Library	AG115A
	HP StorageWorks MSL2024 1 Ultrium 960 FC Drive Library	AG326A
	HP StorageWorks MSL2024 1 Ultrium 448 Drive Library	AG116A
	HP StorageWorks MSL2024 2 Ultrium 448 Drive Library	AG117A
	HP StorageWorks MSL4048 Tape Library	
	HP StorageWorks MSL4048 1 Ultrium 448 Drive Library	AG320A
	HP StorageWorks MSL4048 2 Ultrium 448 Drive Library	AG321A
	HP StorageWorks MSL4048 1 Ultrium 960 Drive Library	AG322A
	HP StorageWorks MSL4048 1 Ultrium 960 FC Drive Library	AG324A
	HP StorageWorks MSL4048 2 Ultrium 960 Drive Library	AG323A
	HP StorageWorks MSL4048 2 Ultrium 960 FC Drive Library	AG325A
	HP StorageWorks MSL6000 Tape Library	
	Ultrium 960 technology	
	HP StorageWorks MSL6030 1 Ultrium 960 Dr LVDS Library	AD606B
	HP StorageWorks MSL6030 1 Ultrium 960 Dr FC Library	AD608B
	HP StorageWorks MSL6030 2 Ultrium 960 Dr LVDS Library	AD607B
	HP StorageWorks MSL6030 2 Ultrium 960 Dr FC Library	AD609B
	Ultrium 460 technology	
	HP StorageWorks MSL6030 1 Ultrium 460 Dr LVDS Library	AD598B
	HP StorageWorks MSL6030 1 Ultrium 460 Dr FC Library	AD600B
	HP StorageWorks MSL6030 2 Ultrium 460 Dr LVDS Library	AD599B
	HP StorageWorks MSL6030 2 Ultrium 460 Dr FC Library	AD601B
	NOTE: Please reference the MSL2024, MSL4048 and MSL6000 Tape Library QuickSpecs at http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at http://www.hp.com/go/ebs	

HP Data Protector Express Software	HP DP Express Backup Server Upgrade for ProLiant Software	BB117AP
	HP DP Express Package for Microsoft Small Business Server	BB118AA
	NOTE: To obtain a free licensed copy of HP Data Protector Express for ProLiant edition software, please visit the "Protect Your Data" link accessible from your ProLiant server's System Management Homepage (SMH) software (SmartStart 7.5 or later).	
	NOTE: Please see the HP Data Protector Express QuickSpecs for additional information regarding the purchase of HP Data Protector Express software: http://h18000.www1.hp.com/products/quickspecs/12337_div/12337_div.html (Worldwide)	

Options

Cluster Options	ProLiant Cluster Starter Kit	364023-B21
	NOTE: For additional information regarding the ProLiant Cluster Starter Kit please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11935_div/11935_div.html (Worldwide)	
	HP HA/F200 for Entry SAN Cluster	364026-B22
	HP HA/F200 for Entry SAN Cluster (Japan)	364026-292
	NOTE: For additional information regarding the ProLiant Cluster for Entry Level SAN please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11932_div/11932_div.html (Worldwide)	
	NOTE: For configuration/certification options for the HP Parallel Database Cluster for Oracle RAC please go to: http://www.hp.com/solutions/highavailability/oracle	
	HP Serviceguard for Linux ProLiant Cluster A.11.16 for SUSE SLES 9 and Red Hat EL & 4 (2 node license cluster kit)	305199-B26
	HP Serviceguard for Linux A.11.16 for SUSE SLES9 and Red Hat EL 3 & 4 (single license version)	307754-B26
	HP Serviceguard for Linux and Red Hat Global File System - 1 year subscription	T2798AA#001
	HP Serviceguard for Linux and Red Hat Global File System - 3 years subscription	T2798AA#003
	NOTE: For additional information regarding HP Serviceguard for Linux, please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11518_div/11518_div.html (Worldwide) NOTE: For configuration/certification options for HP Serviceguard for Linux please go to: http://www.hp.com/info/sglx	
StorageWorks Options	NOTE: For the complete listing of Fibre Channel Host Bus Adapters for Windows 2000, Windows Server 2003 and Linux, please see: http://h18006.www1.hp.com/storage/saninfrastructure/hba.html	
	StorageWorks 2 Gb, 64-bit/133 MHz PCI-X-to-Fibre Channel Host Bus Adapter for Windows 2000, Windows Server 2003, NetWare and Linux	281541-B21
	StorageWorks 2 Gb, Dual Port, 64-Bit/133 MHz PCI-X-to-Fibre Channel Host Bus Adapter W2K, Windows Server 2003 and Linux	321835-B21
	HP StorageWorks 2 Gb, single channel, 133 MHz PCI-X-to-Fibre Channel Host Bus Adapter Windows 2000 and 20003	A7388A
	HP StorageWorks 2 Gb, dual channel, 133 MHz PCI-X-to-Fibre Channel Host Bus Adapter Windows 2000 and 20003	A7387A
	HP StorageWorks FC2142SR 4Gb PCI-E HBA	A8002A
	HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-E HBA	A8003A
	HP StorageWorks FC1142SR 4Gb PCI-E HBA	AE311A
	HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-E HBA	AE312A
	HP StorageWorks FC2143 4Gb PCI-X 2.0 HBA	AD167A
	HP StorageWorks FC2243 4Gb PCI-X 2.0 DC HBA	AD168A

Options

HP StorageWorks Modular Smart Array 20	HP StorageWorks Modular Smart Array 20 NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies.	335921-B21
	HP StorageWorks Modular Smart Array 20 Starter Kit NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies. Includes Smart Array 6402/128 Controller. NOTE: The Modular Smart Array Enclosure 20 Family supports the SATA 1.5Gb/s 3.5" Hot Plug Hard Drives.	366172-B21
HP StorageWorks Modular Smart Array 50	HP StorageWorks Modular Smart Array 50 Enclosure NOTE: Please see the Modular Smart Array 50 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.HTML (Worldwide)	364430-B21
HP StorageWorks Modular Smart Array 500 G2	HP StorageWorks Modular Smart Array 500 Generation 2 NOTE: Please see the Modular Smart Array 500 Generation 2 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11956_div/11956_div.HTML (Worldwide)	335880-B21
Uninterruptible Power Systems - Rack	HP R1.5 VA 1U UPS INTL	AF418A
	HP R1.5 VA 1U UPS JPN	AF421A
	HP R1.5 VA 1U UPS NA	AF419A
	HP R/T2200 2-U ERM	AF412A
USB Options	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	USB 1.44-MB External Diskette Drive (Carbonite)	DC141B
	512MB HP Drive Key II (USB 2.0)	ED516AA
Third Party Rack Adapter Kit (for wide racks)	Rack Adapter Kit NOTE: Not required for most racks. This kit allows HP rack servers to fit in racks that are 24" wide.	332815-B21

Options

HP Rack 5000 Series (Graphite Metallic)	HP 5642 Rack-Unassembled	358254-B21
	NOTE: Please see the HP Rack 5642 QuickSpecs for additional part numbers and Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12074_div/12074_div.HTML (Worldwide)	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	
HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	10642 G2 (42U) Rack Cabinet - Crated	AF003A
	10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet	AF004A
	10642 G2 (42U) Rack Cabinet, without door - Shock Pallet	AF005A
	10642 G2 (42U) Rack Cabinet - with Extension, without door - Shock Pallet	AF006A
	10636 G2 (36U) Rack Cabinet - Pallet	AF011A
	10636 G2 (36U) Rack Cabinet - Shock Pallet	AF012A
	10636 G2 (36U) Rack Cabinet - Crated	AF013A
	10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet	AF014A
	10636 G2 (36U) Rack Cabinet, without door - Shock Pallet	AF015A
	10636 G2 (36U) Rack Cabinet, with Extension, without door - Shock Pallet	AF016A
	NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.	
	NOTE: Please see the Rack 10000 G2 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.HTML (Worldwide)	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	

Options

HP Rack 10000 Series (Graphite Metallic)	HP S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22
	HP 10842 (42U) Rack Cabinet - Pallet	257415-B21
	HP 10842 (42U) Rack Cabinet - Shock Pallet	257415-B22
	HP 10647 (47U) Rack Cabinet - Pallet	245160-B21
	HP 10647 (47U) Rack Cabinet - Crated	245160-B23
	HP 10622 (22U) Rack Cabinet - Pallet	245163-B21
	HP 10622 (22U) Rack Cabinet - Shock Pallet	245163-B22
	HP 10622 (22U) Rack Cabinet - Crated	245163-B23
	NOTE: xxxxxx-B21 (pallet) used to ship empty racks shipped on a truck. -B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels). xxxxxx-B23 (crated) used for air shipments of empty racks.	
	NOTE: It is mandatory to use a shock pallet in order to ship racks with equipment installed. Not all Compaq equipment is qualified to be shipped in the Rack 10000 series.	
	NOTE: Please see the Rack 10000 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.HTML (Worldwide)	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower	

Keyboards and Monitors	TFT7210R Rack Mounted 17" Monitor	348373-B21
	NOTE: For a complete list of Monitors please view the following URL: http://www.hp.com/go/kvm	
	TFT7600 Rackmount Keyboard Monitor US	AG052A
	TFT7600 Rackmount Keyboard Monitor UK	AG053A
	TFT7600 Rackmount Keyboard Monitor GR	AG054A
	TFT7600 Rackmount Keyboard Monitor FR	AG055A
	TFT7600 Rackmount Keyboard Monitor IT	AG056A
	TFT7600 Rackmount Keyboard Monitor SP	AG057A
	TFT7600 Rackmount Keyboard Monitor DEN	AG058A
	TFT7600 Rackmount Keyboard Monitor NOR	AG059A
	TFT7600 Rackmount Keyboard Monitor SE/FI	AG060A
	TFT7600 Rackmount Keyboard Monitor SWI	AG061A
	TFT7600 Rackmount Keyboard Monitor PORT	AG062A
	TFT7600 Rackmount Keyboard Monitor BEL	AG063A
	TFT7600 Rackmount Keyboard Monitor JPN2	AG064A
	TFT7600 Rackmount Keyboard Monitor RUS	AG065A
	TFT7600 Rackmount Keyboard Monitor INTL	AG066A
	1U Rackmount Keyboard with USB, US	AG072A
	1U Rackmount Keyboard with USB, UK	AG073A

Options

	1U Rackmount Keyboard with USB, GR	AG074A
	1U Rackmount Keyboard with USB, FR	AG075A
	1U Rackmount Keyboard with USB, ITL	AG076A
	1U Rackmount Keyboard with USB, SP	AG077A
	1U Rackmount Keyboard with USB, DEN	AG078A
	1U Rackmount Keyboard with USB, NOR	AG079A
	1U Rackmount Keyboard with USB, SE/FI	AG080A
	1U Rackmount Keyboard with USB, SWI	AG081A
	1U Rackmount Keyboard with USB, PORT	AG082A
	1U Rackmount Keyboard with USB, BEL	AG083A
	1U Rackmount Keyboard with USB, JPN2	AG084A
	1U Rackmount Keyboard with USB, RUS	AG085A
	1U Rackmount Keyboard with USB, INTL	AG086A
	NOTE: For additional information regarding Rack Options, please see the following URL: http://www.hp.com/go/rackandpower.	
HP KVM Switch Options	2x1x16 IP Console Switch with Virtual Media	AF601A
	4x1x16 IP Console Switch with Virtual Media	AF602A
	2x16 Server Console Switch with Virtual Media	AF600A
	PS/2 Virtual Media Interface Adapter, 1 pack	AF604A
	NOTE: Requires PS/2 and one USB port on server.	
	Server Console Switch (KVM), 0 x 1 x 8 port	336044-B21
	Server Console Switch (KVM), 0 x 2 x 16 port	336045-B21
	PS/2 Interface Adapter, 1 pack	262588-B21
	PS/2 Interface Adapter, 8 pack	262587-B21
	USB Interface Adapter, 1 pack	336047-B21
	Serial Interface adapter - 1 Pack with power supply	373035-B21
	NOTE: Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm.	
	HP 1x 4 USB/PS2 KVM Switch, RM (ALL)	371302-B21
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.	

Options

HP Serial Console Server Options	HP 16 Port Serial Console Server (worldwide)	AF101A
	HP 48 Port Serial Console Server (worldwide)	AF102A
	Serial Adapter, RJ45-DB9 DCE Female, 1 Pack	AF103A
	Serial Adapter, RJ45-DB9 DCE Female, 8 Pack	AF110A
	NOTE: Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm.	
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.	
Service and Support Offerings (HP Care Pack Services)	Hardware Services On-site Service	
	4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	U4544E
	4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4545E
	Hardware Services 6-Hour Call to Repair On-site Service	
	6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4546E
	Installation & Start-up Services	
	Hardware Installation, Electronic	U4554E
	Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays, Electronic	U4555E
	Installation and Startup for Essentials Rapid Deployment Pack, Electronic	U5683E
	Support Plus	
	Onsite HW support, 8am-9pm, M-F, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic	U4556E
	Support Plus 24	
	Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U4557E
	Onsite HW support 24x7, 4hr response and SuSE Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U6312E
	Onsite HW support 24x7, 4hr response and Red Hat ES Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U8334E
	NOTE: For more information, customer/resellers can contact http://www.hp.com/services/carepack	

Memory

NOTE: This server contains 8 DIMM slots. You can expand server memory by installing supported Registered DDR-2 FBDIMMs.

Memory configurations

The server supports the following Advanced Memory Protection (AMP) options to optimize server availability.

- Advanced ECC supporting up to 16 GB of active memory using 2-GB FBDIMMs.
- Online Spare Memory providing additional protection against degrading FBDIMMs supporting up to 12 GB of active memory and 4 GB of online spare memory utilizing 2-GB FBDIMMs.
- Mirrored Memory providing protection against failed FBDIMMs supporting up to 8 GB of active memory and 8 GB of mirrored memory utilizing 2-GB FBDIMMs.

Maximum memory capacities for all AMP modes will increase with the availability of 4-GB and 8-GB FBDIMMs, including a maximum of 64 GB in Advanced ECC mode.

The Advanced Memory Protection option is configured in RBSU. By default, the server is set to Advanced ECC mode. For more information, refer to HP ROM-Based Setup Utility (on page 56). If the configured AMP mode is not supported by the installed FBDIMM configuration, the system boots in Advanced ECC mode.

The following configuration requirements apply to all AMP modes:

- FBDIMMS must be ECC Registered DDR-2 SDRAM FBDIMMs.
- FBDIMMs must be installed in pairs.
- FBDIMM pairs in a memory bank must have identical HP part numbers.
- FBDIMMS must be populated as specified for each AMP memory mode.

The memory subsystem for this server is divided into two branches. Each memory branch is essentially a separate memory controller. The FBDIMMs map to the two branches as indicated in the following table:

Branch 0	Branch 1
FBDIMM 1A	FBDIMM 5B
FBDIMM 3A	FBDIMM 7B
FBDIMM 2C	FBDIMM 6D
FBDIMM 4C	FBDIMM 8D

This multi-branch architecture provides enhanced performance in Advanced ECC mode. The concept of multiple branches is important for the operation of online spare mode and mirrored memory mode.
If the server contains more than 4 GB of memory, consult the operating system documentation about accessing the full amount of installed memory.

Advanced ECC memory

Advanced ECC memory is the default memory protection mode for this server. In Advanced ECC, the server is protected against correctable memory errors. The server provides notification if the level of correctable errors exceeds a pre-defined threshold rate. The server does not fail because of correctable memory errors. Advanced ECC provides additional protection over Standard ECC in that it is possible to correct certain memory errors that would otherwise be uncorrectable and result in a server failure.

Whereas standard ECC can correct single-bit memory errors, Advanced ECC can correct single-bit memory errors and multi-bit memory errors if all failed bits are on the same DRAM device on the FBDIMM.

In addition to general configuration requirements, Advanced ECC memory also has the following configuration requirements:

- FBDIMMs must be installed in pairs unless operating in single-FBDIMM mode. The server supports single-FBDIMM mode only in

Memory

FBDIMM slot 1A.

- FBDIMMs must be installed in sequential order, beginning with bank A.

In Advanced ECC mode, FBDIMMs must be populated as specified in the following table:

Configuration	Bank A 1A and 3A	Bank B 5B and 7B	Bank C 2C and 4C	Bank D 6D and 8D
1	X	-	-	-
2	X	X	-	-
3	X	X	X	-
4	X	X	X	X

Online spare memory configuration

Online spare memory provides protection against degrading FBDIMMs by reducing the likelihood of uncorrectable memory errors.

An understanding of single-rank and dual-rank FBDIMMs is required to understand memory usage in online spare mode. FBDIMMs can either be single-rank or dual-rank. Certain FBDIMM configuration requirements are based on these classifications. A dual-rank FBDIMM is similar to having two separate FBDIMMs, or ranks, on the same module. Although only a single FBDIMM module, a dual-rank FBDIMM acts as two separate FBDIMMs. The purpose of dual-rank FBDIMMs is to provide the largest capacity FBDIMM for the current DRAM technology. If the current DRAM technology allows for 2-GB single-rank FBDIMMs, a dual-rank FBDIMM using the same technology would be 4-GB.

In online spare mode, a single rank of memory acts as the spare memory. For single-rank FBDIMMs, the entire FBDIMM acts as the spare memory. For a dual-rank FBDIMM, only half of the FBDIMM acts as the spare memory while the other half is available for operating system and application usage.

If one of the non-spare FBDIMMs receives correctable memory errors at a higher rate than a specific threshold, the server automatically copies the memory contents of the degraded rank to the online spare rank. The server then deactivates the failing rank and automatically switches over to the online spare. Because FBDIMMs that experience a high rate of correctable memory errors have a higher probability of receiving an uncorrectable memory error, this effectively reduces the likelihood of uncorrectable memory errors that would result in server downtime.

Online spare is performed per branch of the memory controller. For a server populating both branches, two ranks are utilized for online spare memory. One branch can have a fail over to the associated online spare while the other branch is still protected.

Each branch is made up of two banks:

- Branch 0 contains banks A and C
- Branch 1 contains banks B and D

Online spare FBDIMM configuration requirements (in addition to general configuration requirements):

- When only bank A is being used, it must be fully populated with dual-rank FBDIMMs.
- If banks A and C are being used, they must be fully populated.
- If installed, bank A and bank C must contain FBDIMMs with identical part numbers.
- If installed, bank B and bank D must also contain FBDIMMs with identical part numbers.

In online spare mode, FBDIMMs must be populated as specified in the following table:

Memory

Configuration	Branch 0 Bank A 1A and 3A	Branch 0 Bank C 2C and 4C	Branch 1 Bank B 5B and 7B	Branch 1 Bank D 6D and 8D
1*	X	-	-	-
2	X	X	-	-
3	X	X	X	X

*NOTE: Configuration 1 is only supported if using bank A, populated with dual-rank FBDIMMs.
After installing FBDIMMs, use RBSU to configure the system for online spare memory support ("Configuring online spare memory" on page 57).

Mirrored memory configuration

Mirroring provides protection against uncorrectable memory errors that would otherwise result in server downtime.

Mirroring is performed on the branch level. Branch 0 and branch 1 mirror each other.

Each branch maintains a copy of all memory contents. Memory writes go to both branches. Memory reads come from only one of the two branches (unless an uncorrectable error occurs). If a memory read on one branch returns incorrect data due to an uncorrectable memory error, the system automatically retrieves the proper data from the other branch. A branch is not necessarily disabled (thus losing mirroring protection) because of a single uncorrectable error. Mirroring protection is not lost due to transient and soft uncorrectable errors, resulting in systems that maintain mirroring protection (and thus improved uptime) unless there is a true FBDIMM failure.

Because both branches are active, concurrent reads from both branches at the same time are possible. Therefore, mirroring provides superior read performance compared to all other Advanced Memory Protection modes.

Mirrored memory FBDIMM configuration requirements (in addition to general configuration requirements):

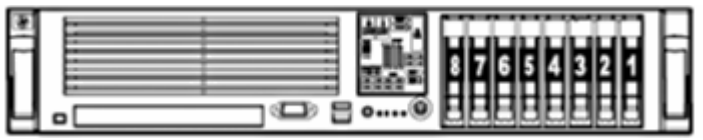
- Banks A and B must be fully populated.
- Bank A and bank B must contain FBDIMMs with identical part numbers. If installed, bank C and bank D must also contain FBDIMMs with identical part numbers.

When using mirrored memory mode, FBDIMMs must be populated as specified in the following table:

Configuration	Bank A 1A and 3A	Bank B 5B and 7B	Bank C 2C and 4C	Bank D 6D and 8D
1	X	X	-	-
2	X	X	X	X

NOTE: After installing FBDIMMs, use RBSU to configure the system for mirrored memory support ("Configuring mirrored memory" on page 57).

Storage



1-8 Eight SFF SAS hot plug hard drive bays

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
1.44-MB Diskette Drive	Only 1 available removable media bay	Slimline bay	Integrated diskette NOTE: Optional
Slimline CD-RW/DVD-ROM Combo Option Kit NOTE: Included in performance models.	Only 1 available removable media bay	Slimline bay	Integrated IDE NOTE: Optional
Slimline DVD-ROM Drive (8x/24x) Option Kit	Only 1 available removable media bay	Slimline bay	Integrated IDE NOTE: Optional
HP ProLiant Slim CD-ROM x24	Only 1 available removable media bay	Slimline bay	Integrated IDE NOTE: Optional
HP DVD+R/RW 8X Slim	Only 1 available removable media bay	Slimline bay	Integrated IDE NOTE: Optional

Hard Drives

SAS - Hot Plug Drives

	Quantity Supported	Position Supported	Controller
36GB 3G SAS 10K 72GB 3G SAS 10K	Up to 8	1-8	Smart Array E200 Controller Smart Array P400 Controller Smart Array P600 Controller NOTE: Optional mixed PCI-X/E required for SA-P600.

SATA - Hot Plug Drives

	Quantity Supported	Position Supported	Controller

Storage

60GB 1.5G SATA 5.4K	Up to 8	1-8	Smart Array E200 Controller Smart Array P400 Controller Smart Array P600 Controller NOTE: Optional mixed PCI-X/E required for SA-P600.

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 20 Family	1 per SCSI VHDCI connector	External	Smart Array 6402/128 Controller Smart Array 6404/256 Controller NOTE: Optional mixed PCI-X/E cage required.
Modular Smart Array 50 Enclosure	2 per connector (supports 1+1 cascading)	External	HP Smart Array P600 Controller NOTE: Optional mixed PCI-X/E cage required.
Modular Smart Array 500 G2	1 per SCSI	External	Please see the Modular Smart Array 500 or 500 G2 QuickSpecs for the latest list of supported HBAs: http://www.hp.com/go/msa500.

Modular Smart Array 1000: http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML (Worldwide)
Modular Smart Array 1500 cs: http://www.hp.com/go/MSA1500cs

Maximum Storage Capacity - (with MSA50)

Internal	576GB (8 x 72GB SAS SFF)
External	1.44TB (20 x 72GB SAS SFF)
Total	1.728TB (4 x 72GB int. + 20 x 72GB ext.)

Tape Drives, Tape Autoloaders, & Tape Libraries

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following: http://h18000.www1.hp.com/products/quickspecs/Division/10233.html (Worldwide)

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Autoloaders & Tape Libraries listed below, please see the following: http://h18000.www1.hp.com/products/quickspecs/Division/10809.html (Worldwide)

NOTE: For complete listing of tape drive offerings see
http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html
For recommended tape drive offerings for this ProLiant server see the following:

	Quantity Supported	Position Supported	Controller
HP StorageWorks Tape Drives, External DAT 24 USB DAT 40 USB DAT 72 USB	1	External	USB 2.0 Port

Storage

HP StorageWorks Tape Drives, External Ultrium 960 SDLT 600	1	External	NOTE: Requires the optional PCI-X Hot Plug Riser Cage Option Kit (410570-B21): 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2
HP StorageWorks Tape Drives, External Ultrium 232 Ultrium 448 Ultrium 460 DAT 40 DAT 72 DLT VS80 DLT VS160 SDLT 320	Up to 2	External	NOTE: Requires the optional PCI-X Hot Plug Riser Cage Option Kit (410570-B21): 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2
HP StorageWorks Rack-mount Tape Drive Enclosures 1U Rack-Mount Kit 3U Rack-Mount Kit	1 per SCSI channel	External	NOTE: Requires the optional PCI-X Hot Plug Riser Cage Option Kit (410570-B21): 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2
HP StorageWorks Tape Autoloaders, External 1/8 Tape Autoloader	1 autoloader per SCSI channel	External	NOTE: Requires the optional PCI-X Hot Plug Riser Cage Option Kit (410570-B21): 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2
HP StorageWorks Tape Libraries, External MSL2024 (Ultrium 448 and 960-based) MSL4048 (Ultrium 448 and 960-based) MSL6000 (Ultrium 960 and 460-based) MSL6000 (SDLT 600-based)	Please reference the MSL Tape Library QuickSpecs to determine configuration requirements	External	Please consult the EBS connectivity matrix at http://www.hp.com/go/ebs for detailed connectivity information.

Power Specifications

Power Supply Specification	Part number		380622-001			
	Spare Kit		403781-001			
Operational Input Voltage Range (Vrms)	90 to 264					
Frequency Range (Nominal) (Hz)	47 to 63 (50/60)					
Nominal Input Voltage (Vrms)	100	120	208	220	230	240
Max Rated Output Wattage Rating	800	850	1000	1000	1000	1000
Nominal Input Current (A rms)	10.0	8.8	5.85	5.5	5.2	4.97
Max Rated Input Wattage Rating (Watts)	980	1035	1193	1186	1172	1169
Max. Rated VA (Volt-Amp)	1000	1056	1217	1210	1196	1193
Efficiency (%)	81.5	82	84	84	85	85.5
Power Factor	0.98	0.98	0.98	0.98	0.98	0.98
Leakage Current (mA)	0.44	0.52	0.91	0.96	1.00	1.04
Max. Inrush Current (A peak)	30	30	30	30	30	30
Max. Inrush Current duration (mS)	3	3	3	3	3	3

NOTES:

- To review typical system power ratings use the Active Answers Power Calculator which is available via the online tool located at url: http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls

To drill down to calculators:

- Click on: "ProLiant Servers"
- Click on the Server of interest. Example: DL380 G5
- Click on: "Power Calculator" link. (You may need to scroll down to see it)

System Unit	Dimensions (HxWxD) (with feet/bezel)	3.38 x 17.54 x 26.01 in (8.59 x 44.54 x 66.07 cm)	
	Weight (approximate)	Maximum	60 lb (27.22 kg)
		Minimum	47.18 lb (20.41 kg)
	Input Requirements (per power supply)	Rated Line Voltage	100-132 VAC, 200-240 VAC
		Rated Input Current	10A (100VAC), 10A (120VAC), 6.1A (200VAC)
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	1000/1056/1205 W
	BTU Rating	BTU/HR	3490/3680/4150
	Power Specifications	To review typical system power ratings use the Active Answers Power Calculator which is available via the online tool located at URL: http://h30099.www3.hp.com/configurator/powercalcs.asp. To drill down to calculators: - Click on: "ProLiant Servers" - Click on the Server of interest. Example: DL380 G5 - Click on: "Power Calculator" link. (You may need to scroll down to see it.)	
	Power Supply Output Power (per power supply)	Rated Steady-State Power	800/850/1000 W
		Maximum Peak Power	800/850/1000 W
	Temperature Range	Operating	50° to 95° F (10° to 35° C) at sea level with an altitude de-rating of 1.8° F per 1000 ft (1.0° C per 304.8 m) to 10,000 ft (3048 m) no direct sunlight allowed. Maximum rate of change is 18° F/Hr (10° C/Hr). Upper operating limit is 10,000 ft (3,048 m) or 70 Kpa/10.1 psia. System performance may be reduced if operating with a fan fault or above 30° C.
		Non-operating	-22° to 140° F (-30° to 60° C) Maximum rate of change is36° F/Hr (20° C/Hr). Upper non-operating limit is 30,000 ft (9,144 m) or 30.3KPa/4.4 psia.
	Maximum Wet Bulb Temperature	101.7° F (38.7° C)	
	Relative Humidity (non-condensing)	Operating	10% to 90% relative humidity (Rh), 28° C maximum wet bulb temperature.
		Non-operating	5% to 95% relative humidity (Rh), 38.7° C maximum wet bulb temperature.
	Acoustic Noise	Idle Minimum (Fixed Disk Drives Spinning)	
		L WAd (BELS)	6.4
		L pAm (dBA)	47

	Operating Minimum (Random Seeks to Fixed Disks)	
	L WAd (BELS)	6.6
	L pAm (dBA)	49

Smart Array P400 Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors
	Cache Memory Speed	DDR2-533MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x8 2.5G PCIe provides 2GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.
	Cache Memory	40-bit 256MB cache (72-bit 512MB module upgrades available); ECC protection, battery-backed, and transportable
	Logical Drives Supported	Up to 32 logical drives
	Maximum Logical Drive Capacity	3TB (6 x 500GB)
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 6 with ADG (Advanced Data Guarding) requires Battery Backed Write Cache Upgrade RAID 5 (Distributed Data Guarding) RAID 1+0 (Striping & Mirroring) RAID 0 (Striping)

Smart Array E200 Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI) 1.5G SATA (Serial Advanced Technology Attachment)
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors
	Cache Memory Speed	DDR1-266 MHz provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x8 2.5G PCIe provides 2GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.
	Cache Memory	40-bit 64MB cache or a 128MB battery backed cache: ECC protection, battery-backed, and transportable
	Logical Volumes Supported	Up to 32 logical volumes
	Maximum Volume Capacity	3 TB (6 x 500 GB)
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 5 (Distributed Data Guarding) RAID 1+0 (Striping & Mirroring) RAID 0 (Striping)

Embedded Dual NC373i Multifunction Gigabit NICs	Network Interface	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000Mb/s
	Connector	Two RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		100Base-TX	Category 5 or higher UTP; up to 328 ft (100 m)
		1000BaseTX	Category 5 or higher UTP; up to 328 ft (100 m)

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For hard drives, 1 GB = 1 billion bytes. Actual formatted capacity is less.